

Contour Mends Pinhole Leak on a Topside Weldolet

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West Africa

Pipe Details

- 10-inch (254-mm) pinhole leak at a weldolet on an oil line
- Essential line that could result in shutdown of the platform

Summary

- A pinhole leak at a weldolet on a 10-inch (254-mm) oil line needed repair
- Clock Spring Contour was applied to the leak and surrounding area
- 2 local Clock Spring trained technicians completed the installation in 2 days
- This repair allows the facility to operate safely until the next planned shutdown

A pinhole leak resulting from internal erosion or a chemical reaction was discovered at a weldolet on a 10-inch (254-mm) line running from the south manifold to the HP separator on a platform offshore West Africa. The owner wanted a stopgap solution that would allow operations to continue safely until the line section could be replaced.

It was important to repair the weldolet because of its role in minimizing stress concentrations and providing integral reinforcement to the line. Inspection revealed leaking oil in the weld area at the chemical injection point.

The line was shut down while technicians removed the paint and the instrumentation from the weldolet, relocated the instrumentation, and inserted a plug in the nozzle so the entire area could be overwrapped using Clock Spring Contour.



The hole is sealed using a small amount of hand mixed epoxy so LEL levels could be established at 0%



Repair area cleaned to SSPC.SP11 surface preparation standards.

Contour is a fiber glass reinforcement system that is 'wetted' with epoxy resin to make it pliable on application. This makes it an ideal solution for defects on complex geometries such as T sections, nozzles, and elbows.

A team of 2 Clock Spring trained and certified installers sealed the pinhole using a small amount of hand mixed epoxy so that LEL (Lower Explosive Limit) levels could be established at 0%. The next step was to clean the area to be repaired to the SSPC.SP11 standard, using power tools on the bare metal, leaving the surface free of all visible oil, grease, dirt, dust, mill scale.

After the hole was sealed with epoxy, the entire nozzle section was encased with a metal-plastic putty, which acts as a secondary leak sealant and gives a smoother geometry for the composite to wrap onto.

Contour was applied to the nozzle and continued onto the main line section to transfer the load and strengthen the welded section.

Peel ply was applied over the entire repair during the curing process. When the resin cured, the peel ply was removed, and the repair area was inspected for defects such as de-lamination and dry spots.

To increase the strength of the repair, technicians applied additional glass around the entire diameter of the pipe and again used peel ply to cover the glass during the curing process. When the cure was complete and the line was back in service, the installers removed the peel ply.

Since the line was completely shut down, the owner decided to extend the repair on each side of the weldolet. The line sections were cleaned to SSPC.SP11, and four layers of glass were applied on each side of the initial repair.



With the resin cured and the repair inspected for defects, the peel ply is removed.



The repair section is coated for UV protection

As in the earlier repair, the peel ply was removed when the resin had cured, and the glass was inspected for defects. When the determination was made that the repair was sound, the entire area was coated for UV protection.

By using the Contour composite solution, the owner was able to resume operations in 2 days, safely operating the facility until the next planned shutdown, when the damaged section of line would be replaced.

There are nearly 3,000 trained Clock Spring installers around the world who are qualified to provide repairs with Clock Spring products. Clock Spring regularly offers **training classes** for installers and can custom design training for individual company needs.